REMARKS

Claims 30 to 75 are in this application. Applicants have canceled claim 31 without prejudice or disclaimer. Applicants have amended claims 30, 32, 51, 57, 65 and 69. Claims 30 and 32 to 75 are pending in this application.

Claims 30-32, 70 and 74 are rejected under 102(e) as being anticipated by U.S. Patent No. 6,451,712, here after Dalton et al.

Dalton et al. describes a method of forming a porous dielectric material layer in an electronic structure (see Abstract). Contrary to the assertion of the Office Action, Dalton et al. **does not** describe a method in which **only** the porogen in the surface region of the dielectric layer has been removed. Dalton et al. describes a method in which **all of the porogen in all of the dielectric layer has been removed.**

Further, contrary to the assertion of the Office Action, when an etch stop layer is formed on the porous dielectric material layer of the instantly claimed invention, the etch stop layer can extend to partially fill the pores **only in the surface region** of the first porous dielectric layer from which the porogen has been removed. In contrast, Dalton et al. describes a method in which the etch stop layer can fill **all the pores** of the porous dielectric layer.

Clearly, Dalton et al. does not teach or describe the method of claim 30, which has the steps of:

providing a first porous dielectric layer having a surface region, wherein said porous dielectric layer is filled with porogen and wherein said porogen has been removed only from said surface region of said first porous dielectric layer; and

forming an etch stop layer upon said first porous dielectric layer so that said etch stop layer extends to partially fill pores in the surface region of said first porous dielectric layer from which said porogen has been removed.

In the instantly claimed invention, the porogen near the surface of the porous dielectric layer, which is filled with porogen, is removed by partial burnout. Thus, **only** the porogen near the surface is removed. See, for example, page 6, lines 28 to 30, of the present specification, which states:

"Figures 2A through 2D are schematic drawings of the inventive structures with partial burnout of porogen near the surface of the via level before RIE and metallization."

Also see page 7, line 29 to page 8, line 5, of the present specification, which states:

"Referring to Figure 2A through Figure 2D, and as described in more detail below, in accordance with the invention, improved adhesion is obtained by partially burning out the porogen near the surface of the via level Porous SiLK™ prior to applying the etch stop (Figure 2B). By increasing the time or temperature of the intermediate hot plate bake, the porogen near the surface can be partially removed. This results in a higher surface area of contact between the via level Porous SiLK™ and etch stop resulting in improved adhesion."

The porogen near the surface is partially removed, which results in a higher surface area of contact between the via level dielectric and etch stop resulting in improved adhesion. Thus, after removing the porogen **only** from the surface region of the first porous dielectric layer, the etch stop layer can extend to partially fill the pores **only** in the surface region of the first porous dielectric layer from which the porogen has been removed.

These features are not taught or described in Dalton et al. Thus, claims 30-32, 70 and 74 are not anticipated by Dalton et al. Therefore, the rejection of claims 30-32,

70 and 74 under 102(e) as being anticipated by Dalton et al. should be withdrawn and claims 30-32, 70 and 74 should be allowed.

Claims 33-40, 42-59 and 62-69 are rejected under 103(a) as being U.S. Patent No. 6,451,712 (Dalton et al.) either alone or in combination with U.S. Patent No. 6,603,204 (Gates et al.).

Dalton et al. describes a method of forming a porous dielectric material layer in an electronic structure (see Abstract). Contrary to the assertion of the Office Action, Dalton et al. **does not** describe or suggest a method in which **only** the porogen in the surface region of the dielectric layer has been removed. Dalton et al. describes a method in which **all of the porogen in all of the dielectric layer has been removed.**

Further, when an etch stop layer is formed on the porous dielectric material layer of the instantly claimed invention, the etch stop layer can extend to partially fill the pores **only in the surface region** of the first porous dielectric layer from which the porogen has been removed. This aspect of the instant claims is not suggested by Dalton et al. In contrast, Dalton et al. describes a method in which the etch stop layer can fill **all the pores** of the porous dielectric layer.

Clearly, Dalton et al. does not teach or suggest the method of claim 30, which has the steps of:

providing a first porous dielectric layer having a surface region, wherein said porous dielectric layer is filled with porogen and wherein said porogen has been removed only from said surface region of said first porous dielectric layer; and

forming an etch stop layer upon said first porous dielectric layer so that said etch stop layer extends to partially fill pores in the surface region of said first porous dielectric layer from which said porogen has been removed.

In the instantly claimed invention, the porogen near the surface of the porous dielectric layer, which is filled with porogen, is removed by partial burnout. Thus, **only** the porogen near the surface is removed. See, for example, page 6, lines 28 to 30, of the present specification, which states:

"Figures 2A through 2D are schematic drawings of the inventive structures with partial burnout of porogen near the surface of the via level before RIE and metallization."

Also see, for example, page 7, line 29 to page 8, line 5, of the present specification, which states:

"Referring to Figure 2A through Figure 2D, and as described in more detail below, in accordance with the invention, improved adhesion is obtained by partially burning out the porogen near the surface of the via level Porous SiLK™ prior to applying the etch stop (Figure 2B). By increasing the time or temperature of the intermediate hot plate bake, the porogen near the surface can be partially removed. This results in a higher surface area of contact between the via level Porous SiLK™ and etch stop resulting in improved adhesion."

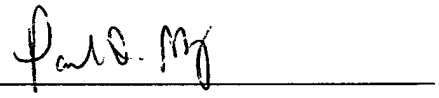
The porogen near the surface is partially removed, which results in a higher surface area of contact between the via level dielectric and etch stop, thereby resulting in improved adhesion. Thus, after removing the porogen **only** from the surface region of the first porous dielectric layer, the etch stop layer can extend to partially fill the pores **only** in the surface region of the first porous dielectric layer from which the porogen has been removed.

Clearly, these features are not taught or suggested in Dalton et al. Thus, claims 33-40, 42-59 and 62-69 are not obvious over Dalton et al. Therefore, the rejection of claims 33-40, 42-59 and 62-69 under 103(a) as being obvious over Dalton et al. either alone or in combination with Gates et al. should be withdrawn and claims 33-40, 42-59 and 62-69 should be allowed.

The present amendments are believed to place the claims in condition for allowance. Accordingly, Applicants respectfully request reconsideration of the present application and allowance of all the pending claims, namely claims 30 and 32 to 75.

An early issuance of a Notice of Allowability is earnestly solicited.

Respectfully submitted,

Date: July 8, 2004 By: 

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